gene detected by said method; (3) a DNA array onto which a gene that is influenced by an endocrine disruptor or a DNA fragment derived from the gene is immobilized; and (4) a method for detecting a substance that potentially causes endocrine disruption.

Summary of Invention

As a result of intensive studies, the present inventors have constructed a method for detecting many types of genes that are influenced by endocrine disruptors rapidly, with high sensitivity and simultaneously. The present inventors have found a method for detecting endocrine disruptors using a DNA array onto which said genes or fragments thereof are immobilized. Furthermore, the present inventors have constructed a method for detecting a substance that potentially causes endocrine disruption. Thus, the present invention has been completed.

In summary, the present invention relates to:

[1] a method for detecting a gene that is influenced by an endocrine disruptor, characterized in which the method comprises:

preparing a nucleic acid sample containing mRNAs, or cDNAs therefor, derived from a cell, a tissue or an organism which has been exposed to a sample containing an endocrine disruptor;

hybridizing the nucleic acid sample with a DNA array onto which genes which are potentially influenced by the endocrine disruptor or DNA fragments derived from the genes which are potentially influenced by the endocrine disruptor are immobilized; and

selecting a gene that is influenced by the endocrine disruptor by comparing the results with results for a nucleic acid sample prepared using a control sample;

[2] the method according to [1] above, wherein a gene selected from the group consisting of:

(1) a gene for a nuclear receptor or a gene related to nuclear receptor transcriptional coupling;

(2) a gene related to kinase-type signal transduction;

(3) a gene related to gonad differentiation;

(4) a gene for or related to a receptor-type kinase;

(5) a gene for or related to an intermediate filament marker;

(6) a gene related to cell cycle or growth regulation;

(7) an oncogene, a gene related to an oncogene or a gene related to tumor suppression;

(8) a gene related to apoptosis;

(9) a gene related to damage response, repair or

recombination of DNA;

(10) a gene for or related to a receptor;

(11) a gene related to cell death or differentiation regulation;

(12) a gene related to adhesion, motility or invasion of cell;

(13) a gene related to angiogenesis promotion;

(14) a gene related to cellular invasion;

(15) a gene related to cell-cell interaction;

(16) a gene for or related to a Rho family, GTPase or a regulator therefor; and

(17) a gene for or related to a growth factor or a cytokine,

or a DNA fragment derived from the gene is used;

[3] a method for detecting an endocrine disruptor, characterized in which the method comprises measuring the expression of the gene detected by the method according to [1] or [2] above;

[4] the method according to [3], wherein the endocrine disruptor is selected from ones classified into:

(1) dioxins;

(2) organochlorine compounds;

(3) phenols;

(4) phthalate esters;

(5) aromatic hydrocarbons;